PolyHeme® Trauma Trial

Community Consultation

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Department of Surgery
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August 6, 2003

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Study Sponsor

Northfield Laboratories Inc.

- Developer of the oxygen-carrying blood substitute called PolyHeme®
- Conducted multiple studies with PolyHeme over the past decade
- Most studies have been with injured trauma patients
- Company website: ***www.northfieldlabs.com***

Study Purpose

To evaluate the life-saving potential of PolyHeme® when given to severely injured and bleeding patients in "hemorrhagic shock," starting at the scene of injury

What is Hemorrhagic Shock?

Hemorrhagic: massive loss of blood

Shock: life-threatening condition

- Dangerously low blood pressure
- Internal organs don't receive enough oxygen and have difficulty functioning
- Might lead to death

Need for Improved Outcome

- The Center for Disease Control (CDC) lists trauma as the leading cause of death among Americans under age 45
- Thousands of trauma patients die each year
- Many of these patients die because the "standard of care" cannot reverse the damaging effects of hemorrhagic shock

What is the Standard of Care?

Represents the current treatment

In the Ambulance	*In the Hospital*
The patient receives salt water (blood is not available)	The patient receives salt water and donated blood

Standard of Care Limitations

In the Ambulance

- Salt water does not carry oxygen, unlike blood
- Without enough oxygen, the body and its internal organs have difficulty functioning and can stop working (organ failure)

Standard of Care Limitations

In the Hospital

- Donated blood takes time (45-60 minutes) to be matched for each patient
- Patients who receive more than 6 units of donated blood in the first 12 hours have an increased risk of organ failure

What is PolyHeme®?

A blood substitute that carries oxygen

1 unit of PolyHeme
=
1 unit of blood

What is PolyHeme®?

- Made from human blood
- Compatible with all blood types
- Immediately available
- Reduced risk of viral disease (viral load reduced over a billion times)

Why Use PolyHeme®?

- PolyHeme was developed to treat blood loss when blood is not available
  - Blood is not available in the ambulance
  - PolyHeme will be immediately available in the ambulance and carries oxygen
- PolyHeme can reduce the use of donated blood in the first 12 hours after injury, and might avoid potential organ failure

Why Use PolyHeme®?

To improve survival of severely injured and bleeding patients

PolyHeme® Experience

- PolyHeme has been studied in more than 300 individuals and 5 different clinical trials
- PolyHeme has been extensively studied in hospitalized trauma patients
- ***PolyHeme has kept trauma patients alive when they have lost all of their own blood***

PolyHeme® Experience

Past studies have shown that PolyHeme

- Carries as much oxygen as blood (1 unit of PolyHeme = 1 unit of blood)
- Reduces need for donated blood
- Has not caused organ damage
- Has replaced up to two times a person's entire blood volume (2 x 10 units = 20 units)

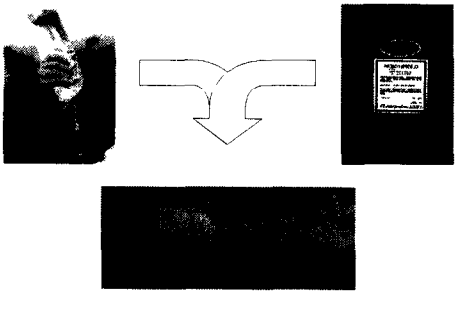
Trial Design: Before the Hospital

Severely injured trauma patients will be assigned to either one of two groups by chance

Control
Receive salt water

Test
Receive PolyHeme®

Ambulance Infusion



Trial Design: At the Hospital

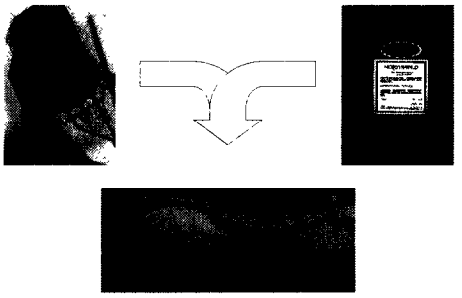
Control

- Salt water for hydration
- Donated blood to boost oxygen levels

Test

- Salt water for hydration
- PolyHeme® to boost oxygen levels
- Maximum dose of 6 units during first 12 hours
- Donated blood will be used thereafter

Hospital Infusion



Who Would Be Included?

Patients at risk of dying

- Who have sustained severe injuries
- Who have lost a large amount of blood and are in shock
- Who are at least 18 years old
- Who are of either gender (male or female)

Who Would Be Excluded?

- Patients who are obviously pregnant
- Patients who have severe head or brain injuries
- Patients who have "unsurvivable" injuries
- Patients who require CPR
- Patients with known objections to blood transfusions
- Patients with known orders not to resuscitate

FDA Review

- Northfield Laboratories received clearance to proceed with this study from the Food and Drug Administration (FDA)
- The FDA authorized the use of an exception from informed consent requirements for this study

What is Informed Consent?

A process by which patients make informed decisions about participating in research studies

- Traditionally required for all research studies
- Research studies compare 2 treatments (standard vs. investigational)
- Doctors describe each of these potential treatments

What is Informed Consent?

A process by which patients make informed decisions about participating in research studies

- Patients are informed of the potential risks and potential benefits associated with each of these treatments
- Patients choose whether to participate in the study

What is Exception from Informed Consent?

Patients are enrolled in a research study without giving their informed consent

How Can That Be?

A federal regulation (21 CFR 50.24), created in 1996, allows certain studies that meet the following criteria to use this exception

- ***Patients' lives must be at risk***
- Available treatments are not satisfactory
- Patients are unable to give consent
- Potential risks are reasonable

How Can That Be?

A federal regulation (21 CFR 50.24), created in 1996, allows certain studies that meet the following criteria to use this exception

- Participation in the research could provide a direct benefit ***(increased survival)*** to the patient
- The research could not be practicably carried out without an exemption

Consent Safeguards

- If possible, the patient or a legally authorized representative (LAR) can give consent before the patient is enrolled in the study
- If consent cannot be obtained before enrollment, frequent attempts will be made to contact the patient's LAR and family to describe the study

Consent Safeguards

The patient, family members, or a legally authorized representative may decide to withdraw the patient at any time

Potential Benefits of PolyHeme®

- ***Might increase the likelihood of survival***
- Can enhance the amount of vital oxygen in the patient's blood
- Is compatible with all blood types
- Is immediately available
- Has reduced risk of viral disease (viral load reduced over a billion times)

Potential Risks of PolyHeme®

- Rash
- Increased blood pressure
- Kidney or liver damage
- Viral infection (HIV, hepatitis, etc.)
- Unforeseen happenings

Patient Protection

The Institutional Review Board (IRB) is a group of medical, scientific, and nonscientific members of the community

- Reviews all proposals for research on humans
- Assures patient safety
- Monitors community feedback

Patient Protection

- The IRB will decide whether or not to allow this hospital to participate in the PolyHeme® trial
- An independent data monitoring committee will oversee the trial
- The FDA will be kept informed of the trial's progress

If We Participate...

- The results of the study will be revealed to the community after the trial has been completed
- Those who do not want to participate in the study can [wear a special bracelet] to exclude themselves

Questions or Comments?